U.S. FISH AND WILDLIFE SERVICE
SPECIES ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: *Catostomus discobolus yarrowi*

COMMON NAME: Zuni Bluehead sucker

LEAD REGION: Region 2

INFORMATION CURRENT AS OF: October 2005

STATUS/ACTION:

___ Species assessment - determined species did not meet the definition of endangered or threatened under the Act and, therefore, was not elevated to Candidate status
___ New candidate
_X_ Continuing candidate
___ Non-petitioned
_X_ Petitioned - Date petition received: May 11, 2004
__ 90-day positive - FR date:
__ 12-month warranted but precluded - FR date:
__ Did the petition requesting a reclassification of a listed species?

FOR PETITIONED CANDIDATE SPECIES:
a. Is listing warranted (if yes, see summary of threats below)? Yes
b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? Yes
c. If the answer to a. and b. is "yes", provide an explanation of why the action is precluded.
We find that the immediate issuance of a proposed rule and timely promulgation of a final rule for this species has been, for the preceding 12 months, and continues to be, precluded by higher priority listing actions (including candidate species with lower LPNs). During the past 12 months, almost our entire national listing budget has been consumed by work on various listing actions to comply with court orders and court-approved settlement agreements, meeting statutory deadlines for petition findings or listing determinations, emergency listing evaluations and determinations, and essential litigation-related, administrative, and program management tasks. We will continue to monitor the status of this species as new information becomes available. This review will determine if a change in status is warranted, including the need to make prompt use of emergency listing procedures. For information on listing actions taken over the past 12 months, see the discussion of "Progress on Revising the Lists," in the current CNOR which can be viewed on our Internet website (http://endangered.fws.gov/).
___ Listing priority change
Former LP: ___
New LP: ___
Date when the species first became a Candidate (as currently defined): October 2001

___ Candidate removal: Former LP:

___ A – Taxon is more abundant or widespread than previously believed or not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.

___U – Taxon not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status due, in part or totally, to conservation efforts that remove or reduce the threats to the species.

___ F – Range is no longer a U.S. territory.

___ I – Insufficient information exists on biological vulnerability and threats to support listing.

___ M – Taxon mistakenly included in past notice of review.

___ N – Taxon does not meet the Act's definition of "species."

___ X – Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Fish, Catastomidae

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Arizona, New Mexico

CURRENT STATES/ COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE: Arizona, New Mexico

LAND OWNERSHIP: The Zuni bluehead sucker habitat remaining is estimated at nine stream miles (15 km). The last remnant of sucker stream habitat is located on the Cibola National Forest (3 percent), Zuni Indian Reservation (26 percent), and private lands (71 percent). Currently, most of the suckers reside in the upper Rio Nutria and Agua Remora.

Rio Nutria: Private: The Nature Conservancy: 5 miles, 8.1 km (56 percent). Tribal: Zuni Pueblo: 1.2 miles, 2 km (13 percent).

Tampico Draw: Private: 0.1 miles, 0.2 km (less than 1 percent).

Agua Remora: Federal: Cibola National Forest: 0.25 miles, 0.4 km (3 percent). Private: 1.3 miles, 2.1 km (15 percent).

Rio Pescado: Tribal: Zuni Pueblo: 1.2 miles, 2 km (13 percent).

LEAD REGION CONTACT: Susan Jacobsen, 505-248-6641

LEAD FIELD OFFICE CONTACT: Marilyn Myers, New Mexico Ecological Services Field Office, 505-761-4754

BIOLOGICAL INFORMATION

Species Description: Propst (1999) describes the Zuni bluehead sucker as fusiform (torpedo

shaped), slender, with a terminal mouth. The sucker has a bluish head, silvery tan to dark green back, and the sides and abdomen are yellowish to silvery white. Adults are mottled slate-gray, almost black, dorsally and cream white ventrally. Males during the spawning season may be differentiated by coarse tubercles on the anal and caudal fins and the caudal peduncle, and distinctive breeding coloration; dorsally they are intense black with a bright red lateral band and a white abdomen (Smith 1966; Propst and Hobbes 1996). Propst and Hobbes (1996) reported most suckers did not exceed 20.3 centimeters (cm) (8 inches (in)), however, some individuals exceeded 25 cm (9 in) total length.

Taxonomy: Smith (1966) and Smith et al. (1983) postulated that the Zuni bluehead sucker subspecies was from a hybrid origin whereby a headwater stream of the Rio Grande was captured by upstream erosion of a headwater stream of the Zuni River during the late-Pleistocene (Propst 1999). This event brought the Rio Grande sucker (*Catostomus plebeius*) into contact with a resident bluehead sucker. Based on shared physical traits, Smith (1966) and Smith et al. (1983) believed this contact area was in the upper reaches of the Rio Nutria. Crabtree and Buth (1987) provided allozymic data supporting subspecific differentiation of upper Little Colorado River *C. discobolus* from its conspecifics prior to introgression of *C. discobolus* and *C. plebeius* in the upper Rio Nutria. Regardless of the mechanism for differentiation of *C. discobolus yarrowi*, it is a recognized subspecies (Propst 1999).

Habitat: Hanson (1980) described Zuni bluehead sucker habitat as stream reaches having shade and pool and riffle habitats with coarse substrates; stream reaches with fine substrates (sand and silt) had few or no Zuni bluehead suckers. Propst and Hobbes (1996) reported that Zuni bluehead suckers were collected mainly in pool and pool-run habitats. Such habitat areas were typically shaded, and water velocity was less than 0.1 meter per second (0.3 feet per second). Most specimens were found in water that was 30 to 50 cm (12 to 20 in) deep, where the substrate ranged from cobble and boulders to bedrock. Pools were often edged by emergent aquatic vascular plants (mainly willows). Periphytic and perilithic algae were generally abundant in reaches where Zuni bluehead suckers were common. The sucker feeds primarily on algae that it scrapes from rocks, rubble, and gravel substrates (Winter 1979; Sublette et al. 1990).

Historical Range/Distribution: The Zuni bluehead sucker is endemic to the headwaters of the Little Colorado River in east-central Arizona and west-central New Mexico (Smith 1966; Smith et al. 1983; Crabtree and Buth 1987; Propst and Hobbes 1996; Propst 1999). The Zuni bluehead sucker was once common in the Little Colorado and Zuni river drainages, but its range has been reduced by over 90 percent (Propst 1999); and its numbers by about 90 percent (Table 1) in the last 20 years. The sucker is now found in low numbers in Kin Li Chee Creek in Arizona (New Mexico Department of Game and Fish (NMDGF) *in litt.,* 2000), and is now restricted to five semi-isolated populations in the upper Rio Nutria drainage in west-central New Mexico (Propst 1999).

New Mexico - The type specimen of the Zuni bluehead sucker was collected from the Zuni River near the Zuni Pueblo, New Mexico, in 1873 (Cope 1874). It was not subsequently collected in New Mexico until W.J. Koster (University of New Mexico, Museum of Southwestern Biology) collected the species in the Rio Nutria in 1948 and the Rio Pescado in 1960 (Propst 1999). Several chemical treatments were made in the Zuni River drainage in New Mexico during the

1960s to remove green sunfish, fathead minnow, and suckers from the Rio Nutria, to aid in the establishment of a rainbow trout sport fishery in reservoirs on the Zuni Pueblo (Winter 1979). These treatments eliminated the Zuni bluehead sucker from most of the Zuni River drainage. However, the population of suckers in the Rio Nutria was maintained by dispersal of individuals from upstream, untreated reaches, such as Aqua Remora (Winter 1979; Propst 1999).

In New Mexico, Hanson (1980) documented the primary areas of occurrence to be Radosevich Creek (renamed Agua Remora), upper Rio Nutria (from the mouth of Nutria Box Canyon near the eastern boundary of the Zuni Indian Reservation upstream), and the confluence of the Rio Pescado and Rio Nutria. Elsewhere in the Zuni River drainage, the Zuni bluehead sucker was rare or absent. By the late 1970s the Zuni bluehead sucker's range had been reduced by at least 50 percent and the species was limited to the upper Zuni River drainage and Kin Li Chee Creek (Hanson 1980; Smith et al. 1983).

Arizona - In Arizona, Smith (1966) reported the subspecies in four small streams (Propst 1999). Smith et al. (1979) collected Zuni bluehead suckers in Arizona from East Clear Creek and Kin Li Chee Creek for genetic analysis. By the early 1980s, the range in Arizona was apparently reduced to only Kin Li Chee Creek (Smith et al. 1983). Crabtree and Buth (1987) confirmed that the Zuni bluehead sucker still persisted in Kin Li Chee Creek in 1987. Genetic studies are currently being conducted to determine if the Arizona subpopulations are a distinct subspecies.

Current Range/Distribution: The Zuni bluehead sucker was once common in the Little Colorado and Zuni River drainages, but its range has been reduced by over 90 percent in the last 20 years (Propst 1999).

New Mexico - The Zuni bluehead sucker currently persists mainly as five semi-isolated populations in a small fraction (9 miles, 15 kilometers) of its former range, and occurs mainly upstream of the mouth of the Rio Nutria Box Canyon (Propst 1999; Propst et al. 2001). Within this area, it is most common near the Rio Nutria Box Canyon mouth; the confluence of the Rio Nutria and Tampico Draw; Agua Remora, and the uppermost Rio Nutria (Stroh and Propst 1993; Propst and Hobbes 1996; Propst 1999; Propst et al. 2001). The Zuni bluehead sucker was very rare or absent elsewhere in the Zuni River drainage in New Mexico (Hanson 1980; Stroh and Propst 1993). Fish surveys from 1990 to 1993 found that Zuni bluehead sucker populations in Agua Remora and upper Rio Nutria were stable. The population at the Zuni River confluence with the Rio Nutria and Rio Pescado was declining, and the populations in the Rio Pescado and lower Zuni River almost depleted (Stroh and Propst 1993).

Propst et al. (2001) stated that dispersal of the Zuni bluehead sucker from upstream populations may augment downstream populations, but upstream movement is generally blocked by physical obstructions, such as irrigation diversions and impoundments. The irregular occurrence of the Zuni bluehead sucker in reaches downstream from the mouth of Nutria Canyon indicates limited downstream dispersal from currently occupied stream reaches. No Zuni bluehead suckers were found in the Rio Nutria between the canyon mouth and the confluence of the Rio Pescado. In the confluence area, a few large individuals were occasionally collected. The absence of smaller individuals suggests that it is the dispersal of larger individuals from upstream reaches that maintains the Zuni bluehead sucker in this area (Propst et al. 2001).

Arizona - In 2000, Zuni bluehead suckers were collected again from Kin Li Chee Creek. A genetic evaluation is being conducted to determine if these fish are a distinct subspecies.

Population Estimates/Status: Table 1 shows a general decline in Zuni bluehead sucker numbers. Rio Nutria, Agua Remora, and Tampico Draw continue to have reasonably stable populations (a total of approximately 7.8 miles of stream). Twelve Zuni bluehead suckers were collected on Forest Service land from Agua Remora in 2005. This site was also sampled in 1984 by Forest Service personnel (data not included in Table 1 because this was the only site sampled) and 93 Zuni bluehead suckers were captured (Stefferud 1985). Suitable perennial habitat in Agua Remora also exists on the private land that was not sampled in 2005, and many Zuni bluehead suckers were observed (S. Carman, NMDGF in litt. 2005). After 1978, the Zuni bluehead sucker was not collected from the Zuni River and was presumed to be extirpated from this water course. In addition, there was a significant decrease in Zuni bluehead sucker numbers in the Rio Pescado from 1978 (93 suckers) to 1993 (4 suckers). Much of the lower portions of historical habitat in the Zuni River and Rio Pescado is dry most, or all, of the year and is no longer suitable habitat. Monitoring conducted in April 2000, and September 2004 (NMDGF 2004) confirmed the extirpation of the Zuni bluehead sucker from the Zuni River and Rio Pescado.

Table 1. Zuni Bluehead Suckers Collected in New Mexico in 1978 to 1979 (Hanson 1980) 1990 to 1993 (Propst and Hobbes 1996), 2000, 2004, and 2005 (collected by Zuni Pueblo and NMDGF personnel).

Stream	1978	1979	1990	1991	1992	1993	2000	01	04	05	Total
Zuni River	1	0	0	0	0	0	**	**	0	**	1
Zuni River 5*	0	7	0	7	0	2	0	**	**	**	16
Rio Pescado	93	67	2	0	0	4	0	**	0	**	166
Rio Nutria	180	50	38	55	170	49	205	88	76	117	1028
Tampico Draw Creek	0	1	0	11	0	0	49	**	22	32	115
Agua Remora	200	92	**	189	**	**	***	***	***	12	493
Dean Creek	1	1	0	0	0	0	**	**	**	**	2
Total	475	218	40	262	170	55	254****	88	98	161	1821

*Zuni River 5 is near the confluence of Rio Nurtria and Rio Pescado.
**No fish collections.
***No fish collection–access denied on private property.
****does not include 182 Zuni bluehead suckers collected in Arizona in 2000.

In 2000, a sucker survey was conducted in Kin Li Chee Creek in Arizona on the Navajo Reservation. This is a historical collection site that had not been sampled since 1987 when the Zuni bluehead sucker was last documented (Crabtree and Buth 1987). One hundred and ninety bluehead suckers were collected from the creek. As mentioned above, genetic testing is ongoing to determine the phylogenetic relationship of this population to those in New Mexico.

THREATS: The species has become imperiled in the last 100 years due to adverse affects of human activities in the watershed, including logging, road construction, overgrazing by livestock, reservoir construction, irrigation withdrawals, stocking of exotic fishes, piscicide treatment, and the introduction of crayfish (Hanson 1980; NMDGF 1988, 1994; Propst and Hobbes 1996; Propst 1999). The NMDGF (1988; 1994) and Propst (1999) reported that the quality of the Zuni River drainage fish habitat has declined in the last 20 years to a point that Zuni bluehead sucker populations are now highly disjunct and greatly reduced in numbers and distribution.

In New Mexico, the documented historic fish fauna of the Zuni River drainage consists of three species: roundtail chub, speckled dace, and Zuni bluehead sucker (Propst 1999). Roundtail chub no longer occur in the Zuni River and speckled dace may be extirpated from the Zuni River drainage (Propst 1999). Zuni bluehead sucker survives in New Mexico only in the Rio Nutria and its small tributaries (Propst 1999).

A. <u>The present or threatened destruction, modification, or curtailment of its habitat or range.</u>
The Zuni bluehead sucker is a stream obligate and does not live in lentic waters (lakes and ponds). It currently occupies nine river miles (15 km) in four areas (Rio Nutria-Nutria Box, Rio Nutria at Tampico Draw confluence, uppermost Rio Nutria, and Agua Remora) (Propst et al. 2001). Zuni bluehead sucker range reduction and fragmentation were caused by discontinuous surface water flow, separation of inhabited reaches by reservoirs, and habitat degradation from fine sediment deposition (Propst and Hobbes 1996). Fine sediments reduce or prevent production of periphyton algae, the primary food of the species. Fine sediments, if mobilized during the spawning season, may smother recently spawned eggs (Propst and Hobbes 1996).

Severe degradation to the watershed occurred because of overgrazing, excessive timber harvest, and indiscriminate road construction. Although most of these activities occurred in the late 1800s and early 1900s, the subsequent erosion, gullying, headcutting, and loss of water continued to cause degradation of natural resources, including habitat for the Zuni bluehead sucker (NMDGF 2004). Impacts to the landscape were so severe that the Pueblo of Zuni brought litigation against the United States Government in the early 1970s. The settlement resulting from this legislation, the Zuni River Watershed Act of 1990, seeks to restore Tribal lands affected by upstream resource damage (NMDGF 2004).

Forest Road 50, which is in the upper watershed of Zuni bluehead sucker habitat, was in the process of being upgraded in 1999. Road construction activities may have direct adverse effects on the watershed from soil erosion and sedimentation to the streams. Indirect adverse effects from fine sediment input will be caused by interrelated actions, such as ranch development, logging, grazing, off-road vehicle use, and other activities. Aerial photographs from 1935 and 1991 show road density in the Cebolla and Rio Nutria subwatersheds rose 138 and 47 percent,

respectively (NMDGF 2004).

Livestock grazing is another imminent threat to Zuni bluehead suckers residing in Agua Remora. Agua Remora on the Cibola National Forest was fenced to exclude livestock in 1978 (Merkel 1979), and the riparian habitat and stream morphology have shown considerable improvement since livestock were excluded (Stefferud 1985). However, the private landowner is apparently continuing to graze livestock in the riparian zone of the creek despite the riparian areas being fenced. Livestock grazing in riparian zones has been found to negatively affect water quality and seasonal quantity, stream channel morphology, hydrology, riparian zone soils, instream and streambank vegetation, and aquatic and riparian wildlife (Belsky et al. 1999). In addition, the U.S. Forest Service (FS) has not had access to Agua Remora on the Cibola National Forest lands since 1992, when the same private property owner would no longer allow them to cross his private property. The FS is attempting to exchange land that they manage for the private land where the Zuni bluehead sucker occurs in Agua Remora.

According to Merkel (1979), both the Rio Nutria and Rio Pescado drainages have been drastically altered by human activities. Many small impoundments, built primarily for watering livestock, occur in the headwaters, preventing some flows from reaching the main streams. Logging, road construction, and overgrazing by livestock have destroyed much of the ground cover. This has caused serious erosion problems, increased stream flow fluctuation, and the accumulation of large quantities of sediment in the reservoirs (Merkel 1979). Reservoirs and diversion dams for irrigation not only have depleted stream flows but also have inundated a number of reaches of stream (Merkel 1979, Hanson 1982). The Rio Nutria and Rio Pescado drainages are dry much of the year except for those reaches that are fed by perennial springs (Merkel 1979).

The principal uses of surface and ground water within the Zuni River watershed are human consumption, livestock, and irrigation. Diverting water for agricultural use is the primary purpose of at least five impoundments, and several other reservoirs act as flood-control structures. Degradation of the upper watershed has led to increased sedimentation and many of the reservoirs are now only shallow, eutrophic ponds or wetlands with little or no storage capacity (NMDGF 2004). Sediment trapping by these impoundments has also changed the character of the streams by altering channel morphology and substrate composition. The lower Rio Nutria was once a perennial stream with generally wide meanders bordered by willow (*Salix* spp.) and cottonwood (*Populus* spp.). Now the channel is deeply incised and the substrate is predominantly silt or silt-sand within a broad-flat valley. Flow is intermittent between ephemeral pools and impoundments. Current habitat conditions are not favorable for Zuni bluehead sucker in much of the watershed downstream from the mouth of Rio Nutria Box. Upstream of the Canyon Box, permanent flow is associated with springs, and bedrock is the predominant substrate.

B. <u>Overutilization for commercial, recreational, scientific, or educational purposes</u>. The Zuni bluehead sucker is not a game fish and does not have recreational or commercial value. In addition, the sucker is listed as Endangered by the State of New Mexico (NMDGF 1999), and the State fishing regulations (NMDGF 1998) prohibit take of endangered species. The U.S. Fish and Wildlife Service (Service) has no information to indicate that overcollection for any purpose

is a contributing factor to its imperiled status.

C. Disease or predation. Nonnative predatory fishes (primarily green sunfish, *Lepomis cyanellus*) have contributed to the displacement or elimination of the species from much of its historic range. Seventy-six species of nonnative fishes that compete with or prey upon native fishes have been introduced into New Mexico waters since about 1850 (Nico and Fuller 1999). Propst and Hobbes (1996) reported that several nonnative fish species had been established in the Zuni River drainage by the late 1970s. The fathead minnow (*Pimephales promelas*), plains killifish (*Fundulus zebrinus*), and green sunfish were all common in the Zuni River drainage. In addition, nonnative predatory fishes (green sunfish, northern pike (*Esox luscius*), and largemouth bass (*Micropterus salmoides*)) enter the Zuni River drainage from several impoundments connected to the river (Hanson 1980). Crayfish have also invaded habitat occupied by the Zuni bluehead sucker and may pose a serious threat either through competition or predation. The Zuni bluehead sucker occurs only in stream habitats that are comparatively free of nonnative fishes (Propst and Hobbes 1996).

D. The inadequacy of existing regulatory mechanisms. Existing regulatory mechanisms that could provide some protection for the sucker include: (1) New Mexico Wildlife Conservation Act; (2) Arizona Non-Game and Endangered Species Program; (3) National Environmental Policy Act; (4) National Forest Management Act; (5) Federal Endangered Species Act; and (6) Zuni Pueblo Law and Order Code. However, the regulatory mechanisms currently in place do not provide adequate protection for the Zuni bluehead sucker and its habitat.

State - The Zuni bluehead sucker is listed as endangered in New Mexico (NMDGF 1999). Under the New Mexico Wildlife Conservation Act of 1974, take of these species is prohibited, but the statute does not provide additional habitat protection or designation of critical habitat (NMDGF 1988, 1998). The Zuni bluehead sucker is listed as a Species of Special Concern by the State of Arizona (Arizona Game and Fish Department 1996), but this statute does not prohibit take and also lacks habitat protection. Therefore, the effectiveness of the New Mexico and Arizona statutes to protect their listed species and habitats has not been adequate to protect the Zuni bluehead sucker.

Federal - Agua Remora provides the only stream habitat (0.25 miles, 0.4 km) for the Zuni bluehead sucker on public land (Cibola National Forest). The FS (1985) classifies the Zuni bluehead sucker as sensitive in Arizona and New Mexico, which provides some limited protection. The National Forest Management Act (NFMA) requires the Forest Service to prepare management plans for each National Forest; and a plan has been completed for the Cibola National Forest (U. S. Forest Service 1985). Forest plans must meet the requirements of the Natural Resources Multiple-Use Act to address such issues as recreation, range, timber, biological diversity, and economic and social factors in agency decision making. The 1985 Cibola National Forest Plan includes a discussion for protection of the sucker. The Plan indicated that fencing would protect Zuni bluehead sucker riparian habitat, but improved range management was needed to restore the entire watershed.

In 1980, the Service and NMDGF explored the possible listing of the Zuni bluehead sucker as an endangered species, but Federal listing did not occur (U.S. Fish and Wildlife Service 1980a,

1980b; NMDGF 1980). Furthermore, this species was previously designated as a Category 2 candidate species in 1991 (U.S. Fish and Wildlife Service 1991), a species for which we had data indicating that listing was possibly appropriate, but for which we lacked substantial data on biological vulnerability and threats to support a proposed rule. We discontinued designation of category 2 species in the February 28, 1996, Notice of Review (61 FR 7956)). The Endangered Species Act (Act) may incidentally afford protection to a species if it coexists with species already listed as threatened or endangered under the Act. No other listed species are known to occur in the remaining Zuni bluehead sucker habitats.

Zuni Pueblo - The Zuni bluehead sucker, speckled dace, and grass carp are protected from fishing in Pueblo lakes (Zuni Pueblo Law and Order Code S7-5-3 par. 36). In addition, stream fishing is prohibited on the Pueblo. These regulations protect the species from take by fishing, but do not include regulations to protect Zuni bluehead sucker habitats.

E. Other natural or manmade factors affecting its continued existence. Hanson (1980) noted that Zuni bluehead sucker habitat within the Zuni River drainage is vulnerable to habitat deterioration from poor water quality, low flows, flood flows, and poor watershed management. These factors taken singly or in combination could eliminate one or more of the remaining Zuni bluehead sucker populations. Furthermore, additional proposed impoundments in the Zuni River drainage potentially threaten the species remaining stream habitat (Stroh and Propst 1993).

Fish toxicants were used in at least two dozen treatments in the Nutria and Pescado Rivers between 1960 and 1975 to eradicate green sunfish and fathead minnows (Merkel 1979). Large numbers of suckers were killed during several of these treatments. One of these treatments killed substantial numbers of Zuni bluehead suckers in the upper Rio Nutria in 1967, and another killed suckers in Cebolla Creek in the Rio Pescado drainage in 1962 (Merkel 1979).

Vandalism to endangered species and their habitats may be a serious threat to the Zuni bluehead sucker in New Mexico. During dry periods, the Zuni bluehead sucker is restricted to a few shallow pools, which make the species extremely vulnerable to poisoning or other forms of vandalism.

CONSERVATION MEASURES PLANNED OR IMPLEMENTED: For several years, the NMDGF has been the lead agency to develop a conservation plan for Zuni bluehead sucker (Propst and Hobbes 1996). A new study funded through ESA section 6 funds with the Service and NMDGF was initiated in year 2000 and will continue through 2005. The grant includes the development and implementation of a Zuni Bluehead Sucker Conservation Plan, and acquiring additional information on distribution, life history, and species associations with the Zuni bluehead sucker. New Mexico's "Zuni bluehead sucker (*Catostomus discobolus yarrowi*) recovery plan" was completed and approved by the New Mexico State Game Commission during a State Game Commission on December 15, 2004. Potential cooperators for the conservation effort are a private land owner, Zuni Pueblo, Forest Service, The Nature Conservancy, NMDGF, and the Service. In April 2000, 182 bluehead suckers were collected (57 retained for genetic analysis and 125 released) from Kin Li Chee Creek on the Navajo Reservation. These bluehead suckers are being analyzed at Arizona State University with funding from NMDGF.

SUMMARY OF THREATS: Zuni bluehead sucker range reduction and fragmentation is caused by discontinuous surface water flow, separation of inhabited reaches by reservoirs, and habitat degradation from fine sediment deposition. Degradation of the upper watershed has led to increased sedimentation, and many of the reservoirs are now only shallow, eutrophic ponds or wetlands with little or no storage capacity. Additional threats to the species include logging, road construction, overgrazing by livestock, reservoir construction, irrigation withdrawals, crayfish, and stocking of exotic fishes.

For species that are being removed from candidate status:

___Is the removal based in whole or in part on one or more individual conservation efforts that you determined met the standards in the Policy for Evaluation of Conservation Efforts When Making Listing Decisions (PECE)?

LISTING PRIORITY:

THREAT			
Magnitude	Immediacy	Taxonomy	Priority
High	**Imminent**	Monotypic genus	1
		Species	2
		Subspecies/population	**3***
	Non-imminent	Monotypic genus	4
		Species	5
		Subspecies/population	6
Moderate to Low	Imminent	Monotypic genus	7
		Species	8
		Subspecies/population	9
	Non-imminent	Monotypic genus	10
		Species	11
		Subspecies/population	12

Rationale for listing priority number:

Magnitude: The range of Zuni bluehead sucker has been reduced by over 90 percent. The subspecies exists in about 15 km of headwater tributaries of the Rio Nutria, New Mexico, and in approximately 10 km of the Kin Li Chee Creek drainage in Arizona. There is limited connectivity among populations and most are restricted to short (< 1 km) reaches with permanent water (Propst 2001). There has been a significant decrease in the number of Zuni bluehead sucker since 1978, and the trend continues downward. The subspecies no longer occurs in the Zuni River, Rio Pescado, and Dean Creek.

Imminence: Land management practices (especially road and residential development) continue to degrade the habitat of Zuni bluehead sucker by contributing sediment to the streams. Dams

and natural barriers block movement of fish and isolate the populations. Natural events, in particular drought or scouring floods after a fire, are very real threats. If the current drought continues or worsens, extirpation of Zuni bluehead sucker could be imminent.

__X__ Have you promptly reviewed all of the information received regarding the species for the purpose of determining whether emergency listing is needed? Yes.

Is Emergency Listing Warranted? No. Given the information we currently have on the status of the populations, we do not believe this subspecies should be emergency listed. One population is semi-protected because it occurs on land owned by The Nature Conservancy. The effect of the ongoing drought on the populations is unknown.

DESCRIPTION OF MONITORING: As part of current efforts to recover the fish, the New Mexico Department of Game and Fish (NMDGF) has begun a monitoring program to assess the status of the species (NMDGF 2004, 2004a). Lack of recent information on the population is a problem since it appears that numbers were declining and the area has been subject to drought conditions over the last several years. As part of State recovery efforts, the NMDGF has begun an extensive monitoring program to evaluate the status of the species. This annual monitoring will help us better assess the status of the Zuni bluehead sucker.

Zuni Pueblo personnel conducted surveys of the Pueblo and other historic habitats in cooperation with the Service, Navajo Nation, and the NMDGF in 2000, and the Pueblo was funded by the Service for surveys again in 2001. East Clear Creek is the only historic Zuni bluehead sucker locality that was not resurveyed in 2000.

COORDINATION WITH STATES

Indicate which State(s) (within the range of the species) provided information or comments on the species or latest species assessment: New Mexico, Arizona

Indicate which State(s) did not provide any information or comments:

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APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes, including elevations or removals from candidate status and listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all resubmitted 12-month petition findings, additions or removal of species from candidate status, and listing priority changes.

Approve: /s/ Rich McDonald 11/17/2005
Acting Regional Director, Fish and Wildlife Service Date

Concur: August 23, 2006
Director, Fish and Wildlife Service Date

Do not concur:
Director, Fish and Wildlife Service Date

Date of annual review: October 2005
Conducted by: Marilyn Myers